Vitamin A Deficiency in Young Lambs

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SUMMARY

Prolonged feeding of breeding ewes on vitamin A deficient diets may result in birth of weak and dead lambs. Information is now presented on the effect of a vitamin A deficient diet on breeding ewes and their lambs where the degree of deficiency was not such as to affect the new born lambs.

Merino ewes, which had experienced about 6 months' drought in Queensland, were mated and lambed in pens on a restricted intake of wheat 90, wheaten chaff 10, ground limestone 1.5. The ewes and lambs, and then the lambs alone, were continued on this diet. Dosing half of the ewes with one million units of vitamin A approximately 120 days before lambing resulted in the treated ewes showing significantly higher plasma vitamin A levels 240 days later, but birth weights, neo-natal mortality, and early growth of the lambs were unaffected.

Three doses of vitamin A, total 515,000 units†, given to half of the lambs resulted in maintenance of adequate plasma vitamin A levels over 250 days in those treated, whereas in the untreated group the mean plasma vitamin A level had fallen to less than 4 micrograms per cent. by 120 days. The first death, due to hypovitaminosis A, occurred at 136 days. By 250 days there was a total mortality of 56 per cent. All deaths were associated with plasma vitamin A levels less than 2.5 micrograms per cent. A mortality of 18 per cent. was recorded in the treated lambs. There were no specific ante- or post-mortem indications of hypovitaminosis A other than anorexia and cachexia.

At 98 days there was no correlation between the plasma vitamin A levels of the ewes which were still lactating and their lambs which had not been supplemented.

The results indicate that even where ewes are mated after some months of drought and are carried through pregnancy on an extremely vitamin A deficient diet, no worthwhile response is to be expected from providing a vitamin A supplement for the ewes. However, irrespective of the vitamin A status of the ewes, where the ewes and new born lambs are restricted to vitamin A deficient feed, at least when it is fed at drought feeding levels, deaths of lambs due to hypovitaminosis A may be expected by four months. Thus where ewes lamb and rear their lambs for longer than, say, two months on a vitamin A deficient diet, vitamin A supplementation of the lambs would be warranted.

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†An international unit (I.U.) of vitamin A is equvalent to 0.344 micrograms of vitamin A acetate, or 0.300 micrograms of vitamin A alcohol. (A microgram is one-millionth of a gram.)